

ABSTRACT

A method of fabricating a semiconductor device includes the steps of forming a first film of silicon nitride or silicon oxynitride on a polysilicon layer, forming a second film of silicon oxide on the first film by chemical vapor deposition, and oxygen-annealing the second film to form a tunnel oxide film. The presence of the silicon nitride or silicon oxynitride film enables an annealing process with a high oxidation capability to be used without oxidizing the polysilicon layer. The leakage of unwanted current through the tunnel oxide film can thereby be reduced, improving the data retention characteristics of devices such as flash memories.